Application no. 10/027,604
Response and Amendment dated 01/13/2006
in Reply to Office Action dated 10/13/2005

REMARKS

The examiner is thanked for a thorough examination of the present patent application.

In this document, the term "applicant" indicates and includes both singular "applicant" and plural "applicants."

Claims 1, 2, 4-9, and 11-16 are pending in the application. Claims 1, 8, and 15 as Independent Claims. Claims 1, 8, and 15 are currently amended to eliminate duplicate clause within each amended claim.

I.   CLAIM REJECTION UNDER 35 USC 103(a)

Claim 1 was rejected under 35 U.S.C. 103(a) as being unpatentable over Miller (U.S. Patent No. 6,311,138) in view of D'Albora (U.S. Patent No. 4,114,136) in view of Wiggers (U.S. Patent No. 5,397,981) in further view of Norton (U.S. Patent No. 4,592,077). The applicant respectfully traverses.

A.   The Rejection Should Be Withdrawn On **Procedural Grounds** for Failure
        to Establish the Prima Facie Case of Obviousness

For a valid rejection under 35 U.S.C. 103(a), "[t]he **examiner bears the initial burden** of factually supporting any *prima facie* conclusion of obviousness." MPEP Edition 8 Revision 2, Sec. 2142 (italic in the original; bold added). "The PTO bears the burden of establishing a case of prima facie obviousness." *In re Rijckaert*, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993); *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992); *Graham v. John Deere Co.*, 383 U.S. 1, 17-18

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(1966),

"To establish a *prima facie* case of obviousness, three basic criteria must be met. **First**, there **must** be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. **Second**, there **must** be a reasonable expectation of success. **Finally**, the prior art reference (or references when combined) **must** teach or suggest all the claim limitations." MPEP Edition 8 Revision 2, Sec. 2142 (italic in the original; bold added), citing *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

"The teaching or suggestion to make the claimed combination and the reasonable expectation of success **must both be found in the prior art**, and **not based on applicant's disclosure**." Id. (bold added). In fact, "The mere fact that reference <u>can</u> be combined or modified does not render the resultant combination obvious **unless the prior art also suggests** the desirability of the combination." MPEP Edition 8 Revision 3, Sec. 2143.01 (underline in the original, bold added), citing *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). Again, there must be a suggestion or motivation **in the reference** to do so. *In re Mills*, 916 F.2d at 682, 16 USPQ2d at 1432 (bold added).

Here, the examiner fails to establish the elements of the *prima facie* case of obviousness.

Firstly, the examiner fails to establish the first element of the *prima facie* case of obviousness that requires the suggestion to combine the references to be "found in the prior art." Such motivation to combine the three cited references is nakedly alleged without citation to the cited references. The examiner alleges that it is obvious to combine four references to render obvious Claim 1. However, the examiner fails to make even one citation within any one of the cited references to show the existence of motivation or suggestion to combine those four prior art references.

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Additionally, the examiner fails to even allege, let alone establish, the third element of the *prima facie* case of obviousness. For example, Claim 1 recites steps that provides for performing different actions depending on whether or not zero space pattern is found. Such technique is not even alleged to be found in any of the cited references.

"If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness." MPEP 2142. In light of the fact that the examiner fails to meet its burden to shown a *prima facie* case of obviousness, the applicant respectfully submits that no further discussion is necessary for allowance of Claim 1.

However, to provide additional assistance for the examiner, the applicant respectfully submits, without prejudice, the following additional analysis:

B.   The Rejection Should Be Withdrawn On Procedural Grounds Because of the Improper Application of Hindsight Analysis

The applicant respectfully submits that the present rejection is based on a hindsight analysis that violates a tenet of patent law. *Hodosh v. Block Drug Co., Inc.*, 786 F.2d 1136, 1143 n.5, 229 USPQ 182, 187 n.5 (Fed. Cir. 1986).

Modification of "prior art references without evidence of such a suggestion, teaching, or motivation simply takes the **inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability – the essence of hindsight.**" *In re Dembiczak*, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999) (Emphasis added). "[We] cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention." *In re Fine*, 837 F.2d 1071, 1075, 5 USPQ2d 1780, 1783 (Fed. Cir. 1988). "Defining the problem in terms of its solution reveals improper hindsight in the selection of the prior art relevant to obviousness." *Monarch Knitting Mach. Corp. v. Sulzer Morat Gmbh*, 139 F.3d 877, 880, 45 USPQ2d 1977, 1981 (Fed. Cir. 1998).

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Here, the examiner pieces together four prior art references – Miller, D'Albora Wiggers, and Norton – without making a single citation within any one of these prior art references to reject Claim 1 as "obvious." This is a textbook case of hindsight analysis.

Again, due to the procedural insufficiencies and invalidity of the rejection, the applicant respectfully submits that no further discussion is necessary for allowance of Claim 1.

However, to provide additional assistance for the examiner, the applicant respectfully submits, without prejudice, the following additional analysis:

C.   The Rejection Should Be Withdrawn On Substantive Grounds

The applicant respectfully submits that the Miller reference, the Wiggers reference, and the D'Albora reference, individually, or in any combination, do not render Claim 1 obvious. Claim 1 recites, inter alia, a step of "calculating bit period of the input signal by determining time period between the first zero space and the second zero space" where a zero space "is a period of time with no signal value (or data points) above certain threshold." Specification, paragraph [0004].

The examiner admits that the "Miller [reference] does not explicitly teach **calculating bit period of the input signal by determining the time period between the first zero space and the second zero space.**" Office Action, p. 4 (bold in the original). However, the examiner alleges that the "Wiggers [reference] teaches ... **calculating bit period of the input signal by determining the time period between the first zero space and the second zero space.**" Id. (bold in the original). The examiner asserts that this allegation is supported because, in the Wiggers reference, "amplitude value of each sample is compared to a reference threshold, and **three consecutive zero crossings** calculated[, t]hen the period is calculated as the time between the first and the third crossings." Office Action, p. 5 (bold added).

The applicant respectfully traverses and submits that the assertion of the examiner
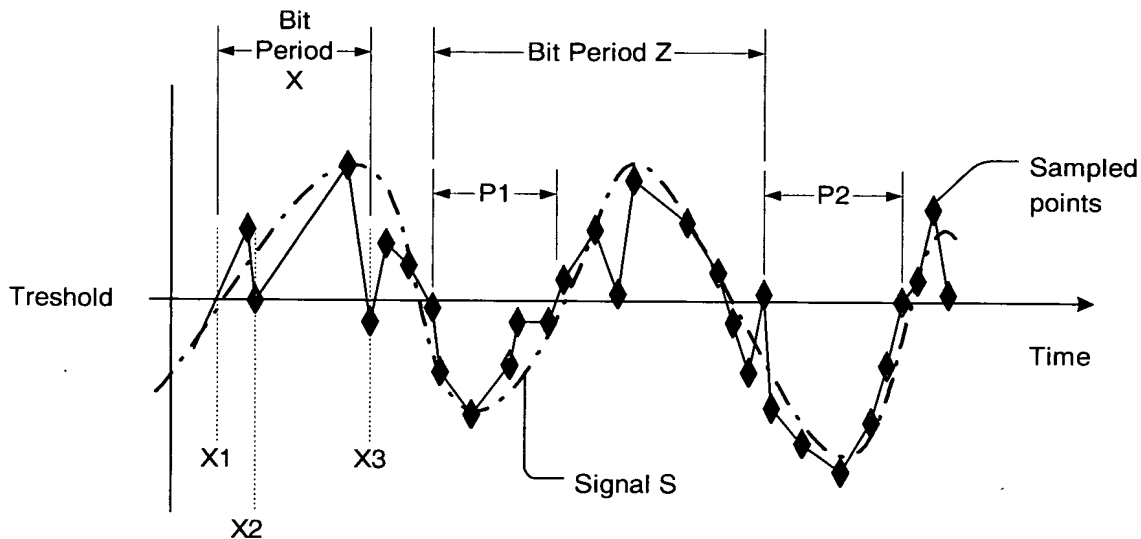
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is incorrect. Calculating bit period based on zero space is **not** equivalent to calculating bit period from "three consecutive zero crossings." This is because, for example, the two different approaches result in two different calculated bit periods for real world jittered and noise signals.

In the Wiggers reference, "the period of the signal [is] determined" by finding where "the amplitude of a signal crosses a horizontal reference line three times." Wiggers, col. 7, lines 16-18 and Wiggers, Figure 3.

In contrast, Claim 1 of the present invention determines the bit period by finding two consecutive zero spaces. Claim 1.

Figure A below shows noisy signal sample with sampled data points illustrating the differences. For the Signal S, a single waveform, sampled points are illustrated in small diamond data points. Under the Wiggers approach, "three consecutive zero crossings" are found as X1, X2, and X3 and the Wiggers' Bit Period X.
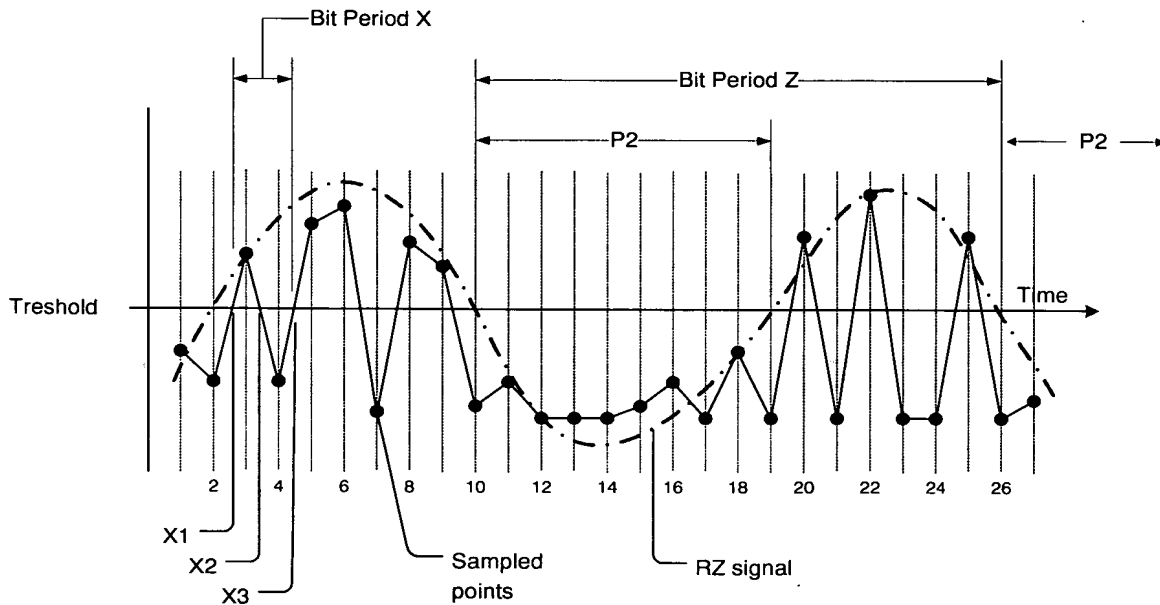
In contrast, in Claim 1, zero space patterns P1 and P2 are first found where a zero space "is a period of time with no signal value (or data points) above certain threshold." Specification, paragraph [0004]. Here, the Bit Pattern Z is calculated from the patterns P1 and P2. As illustrated, the Bit Pattern Z is different than and, in this case, more correct than, Bit Pattern X found under the Wiggers invention.

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FIGURE A

Figure B below shows noisy signal samples with sampled data points in multi-waveform graph for RZ signal, for example, in pseudorandom binary sequence (PRBS) multi-waveform signal. Here, under the Wiggers approach, "three consecutive zero crossings" are completely useless as its "zero crossings" X1, X2, and X3 are everywhere and results in useless Bit Period X.

In contrast, in Claim 1, zero space patterns P1 and P2 are first found where a zero space "is a period of time with no signal value (or data points) above certain threshold." Specification, paragraph [0004]. Here, the Bit Pattern Z is calculated from the patterns P1 and P2. As illustrated, the Bit Pattern Z is different than and, again in this case, more correct than, Bit Pattern X found under the Wiggers invention.

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FIGURE B

Consequently, the Miller reference, the Wiggers reference, and the D'Albora reference, individually, or in any combination, do not render Claim 1 obvious. This is because, as discussed, even when combined, the cited references fail to each the step of "calculating bit period of the input signal by determining time period between the first zero space and the second zero space" as recited in Claim 1. Thus, the references fail to meet the third requirement of the prime facie case of obviousness under MPEP 2143 and *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Accordingly, the applicant respectfully submits that Claim 1 is allowable over the cited references.

Further, Claim 1 recites, *inter alia*, step of "determining, if zero space pattern is not found, whether non-return-to-zero (NRZ) autoscale is applicable."

Contrary to the examiner's allegations, the D'Albora reference does not teach a step of determining whether NRZ autoscale is applicable. Rather, in the D'Albora reference, its input signal is assumed to be an NRZ signal and is processed as such. See, e.g, the portions

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of the D'Albora reference cited by the examiner.

Accordingly, even if the D'Albora reference is combinable and is combined with the Miller reference and the Wigger reference, these references fail to teach all limitation of Claim 1.

Consequently, the applicant respectfully submits that Claim 1, is allowable over the cited references.

Dependent Claim 2 was rejected under 35 USC. 103(a) as being unpatentable over Miller, D'Albora, Wiggers, and Norton references, and further in view of Gauland et al. (U.S. Patent No. 6,571,185). The applicant respectfully traverses.

The applicant respectfully traverses. Claim 2 depends on Claim 1. The applicant respectfully submits that Claim 2 is allowable for at least the same reasons for which Claim 1 is allowable. See, e.g., *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

Dependent Claims 4-7 were rejected under 35 U.S.C. 103(a) as being unpatentable over the Miller reference in view of the D'Albora reference in view of Wiggers in further view of Norton. The applicant respectfully traverses. Claims 4-7 depend, directly or ultimately, on Claim 1. The applicant respectfully submits that Claims 4-7 are allowable for at least the same reasons for which Claim 1 is allowable. See, e.g., *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

Independent Claims 8 and 15 were rejected under 35 USC. 103(a) as being unpatentable over Miller, Wiggers, D'Albora, and Norton. The applicant respectfully traverses.

Although different in scope compared to Claim 1, Claims 8 and 15 recite similar limitations to Claim 1. Accordingly, the applicant respectfully submits that analysis of the rejection and the prior art references with respect to Claim 1 applies to Claims 8 and 15. For at least for these reasons, the applicant respectfully submits that Claims 8 and 15 are

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allowable over the cited reference for at least the same reasons for which Claim 1 is allowable.

Dependent Claim 9 was rejected under 35 U.S.C. 103(a) as being unpatentable over Miller, D'Albora, Wiggers, and Norton references, and further in view of the Gauland reference. The applicant respectfully traverses.

The applicant respectfully traverses. Claim 9 depends on Claim 8. The applicant respectfully submits that Claim 9 is allowable for at least the same reasons for which Claim 9 is allowable. See, e.g., *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

Dependent Claims 11-14 were rejected under 35 U.S.C. 103(a) as being unpatentable over Miller, Wiggers, D'Albora, and Norton. The applicant respectfully traverses. The applicant respectfully traverses. Claims 11-14 depend, directly or ultimately, on Claim 8. The applicant respectfully submits that Claims 11-14 are allowable for at least the same reasons for which Claim 8 is allowable. See, e.g., *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

Dependent Claim 16 was rejected under 35 USC. 103(a) as being unpatentable over Miller, Wiggers, D'Albora, and Norton references. The applicant respectfully traverses. Claim 16 depends on Claim 15. The applicant respectfully submits that Claim 16 is allowable for at least the same reasons for which Claim 15 is allowable. See, e.g., *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

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CONCLUSION

In view of the foregoing Remarks, the applicant respectfully submits that the entire application is in condition for allowance. The applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

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